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August 11, 2003

VIA HAND DELIVERY

Thomas M. Dorman
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40601

RECEIVED
AUG 11 2003
PUBLIC SERVICE
COMMISSION

RE: *An Investigation of East Kentucky Power Cooperative, Inc.'s Need For The
Gilbert Unit and the Kentucky Pioneer Energy, LLC Purchase Power
Agreement*
Case No. 2003-00030

Dear Mr. Dorman:

Enclosed please find and accept for filing the original and ten (10) copies of the Testimony of Dwight N. Lockwood, P.E., QEP, for Kentucky Pioneer Energy, LLC in the above-referenced case. Please confirm your receipt of this filing by placing the stamp of your Office with the date received on the enclosed additional copy and return it to me in the self-addressed stamped envelope.

Should you have any questions or need any additional information, please contact me at your convenience.

Yours very truly,


Kendrick R. Riggs

KRR/ec

Enclosures

cc: Parties of Record
Dwight N. Lockwood, P.E., QEP (w/ encl.)
Michael Musulin (w/ encl.)
Harry H. Graves (w/ encl.)

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COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

**AN INVESTIGATION OF EAST KENTUCKY
POWER COOPERATIVE, INC.'S NEED FOR
THE GILBERT UNIT AND THE KENTUCKY
PIONEER ENERGY, LLC PURCHASE
POWER AGREEMENT**

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**CASE NO:
2003-00030**

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**PUBLIC SERVICE
COMMISSION**

**TESTIMONY OF
DWIGHT N. LOCKWOOD, P.E., QEP
GLOBAL ENERGY INC. / KENTUCKY PIONEER ENERGY, LLC**

Filed: August 12, 2003

1 **Q. Please state your name, position and business address.**

2 A. My name is Dwight N. Lockwood, P.E., QEP. My business address is Global Energy
3 Inc., 312 Walnut Street, Suite 2650, Cincinnati, Ohio 45202.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am employed by Global Energy Inc. as the Vice President of Regulatory Affairs.

6 **Q. In that capacity, what are your responsibilities?**

7 A. As a senior manager in the corporation, I oversee and advise the organization on
8 regulatory matters in the area of environmental, health and safety issues, with special
9 emphasis and experience in environmental issues. My primary responsibilities have been
10 to manage the development and negotiation of all permits and certificates necessary for
11 the approval and construction of the Kentucky Pioneer Energy, LLC project and other
12 projects. My engineering background and experience in the management of large capital
13 projects also enables me to serve in an interface capacity with engineering firms and
14 suppliers.

15 **Q. Could you give a brief review of you work experience?**

16 A. Yes. I have a graduate degree in Mechanical Engineering, received after serving as a
17 pilot in the US Navy. I am a Registered Professional Engineer (P.E.) in three states, a
18 Qualified Environmental Professional (QEP), which is a certification in the
19 environmental field comparable to the PE, and am a qualified Environmental
20 Management Systems Auditor. My employment included twenty years in the oil
21 industry, in facilities, project management, environmental management and internal
22 environmental consulting at the headquarters level. I created and ran my own project

1 management and environmental management consulting business for a few years before
2 joining Global Energy Inc. where I have been for approximately five years.

3 **Q. Please describe Kentucky Pioneer Energy, LLC.**

4 A. Kentucky Pioneer Energy, LLC ("Kentucky Pioneer") is a wholly owned subsidiary of
5 Global Energy Inc. and is qualified to do business in Kentucky. Kentucky Pioneer is
6 proposing to build, own and operate a synthesis gas fired combined cycle base load
7 power plant having a total electrical generating capacity of 540 megawatts (net export).
8 The Kentucky Pioneer facility will be located near Trapp in Clark County, Kentucky on
9 land leased from East Kentucky Power Cooperative, Inc. ("EKPC") within its J.K. Smith
10 Generating Station site.

11 **Q. What is the purpose of your testimony?**

12 A. The purpose of my testimony is to respond to the testimony and other evidence presented
13 by EKPC showing that it is reasonable and cost-effective to continue with the Kentucky
14 Pioneer purchase power agreement in lieu of adding combustion turbines to meet its load
15 later in this decade.

16 **Q. Could you provide a brief overview of Kentucky Pioneer's Integrated Gasification**
17 **Combined Cycle power plant?**

18 A. Yes. This project will be the first commercial application of the British Gas/Lurgi
19 ("BGL") fixed bed gasification technology in the U.S., though several units of an earlier
20 version of this technology have been operating in this country and around the world for
21 several decades. This clean coal technology will convert high sulfur coal and refuse-
22 derived fuel ("RDF") into clean synthetic gaseous fuel ("synthesis gas" or "Syngas").

1 The gasification process operates at extremely high temperatures in a closed and
2 pressurized gasifier, without stacks or vents, that converts its organic feedstock (Coal and
3 RDF) into a Syngas of primarily hydrogen and carbon monoxide. The raw Syngas
4 stream from the gasification process then undergoes various cleanup steps including
5 scrubbing to remove over 99% of its sulfur content, as well as other contaminants. In
6 this project, the Syngas product will be fed to two gas turbines (General Electric 7 FA's)
7 which, together with a single steam turbine, will deliver approximately 540 megawatts of
8 electrical power to EKPC.

9 The gasification process itself is a chemical conversion process, changing the
10 energy content of the solid feedstock into a gaseous form. The clean manufactured
11 Syngas is chemically distinct from the feedstock. The resulting Syngas is then used as a
12 fuel in the gas turbines and performs similarly to natural gas.

13 The most interesting and promising aspect of this technology is its ability to
14 utilize high sulfur coal without the environmental impacts that are commonly associated
15 with this energy resource. Stack emissions from the gas turbine using Syngas are
16 comparable to using natural gas. Additionally, this type of clean coal technology does
17 not have the ash problems associated with current coal fired generators.

18 **Q. Should the Commission reauthorize a purchase power agreement between**
19 **Kentucky Pioneer and EKPC?**

20 A. Yes. The Kentucky Public Service Commission ("Commission") has determined that it
21 will reconsider its earlier approval of the purchase power agreement ("PPA") in light of
22 the fact that the Kentucky Pioneer project is delayed beyond existing contractual
23 milestone dates. EKPC, in response to the Public Service Commission's data request,

1 dated July 17, 2003, identified that the year 2008 is an appropriate new commercial
2 operations date for Kentucky Pioneer generation. Kentucky Pioneer believes this
3 suggestion is reasonable.

4 Kentucky Pioneer believes there are compelling reasons for the Commission to
5 reauthorize the PPA with EKPC. They are:

- 6 ➤ Natural gas forecast availability and cost;
- 7 ➤ Exceptionally low cost power for EKPC members, which would be lost if the
8 PPA is cancelled by the Commission or EKPC;
- 9 ➤ The relatively small quantity of Kentucky Pioneer generation that EKPC currently
10 forecasts having to sell off-system when Kentucky Pioneer begins generation;
11 and
- 12 ➤ Kentucky Pioneer is, and has been under delay, due to the protracted U.S.
13 Department of Energy ("DOE") Environmental Impact Statement ("EIS")
14 process, followed by the new "Plant Siting Act" and its associated and currently
15 active "Siting Board" Certification process.

16 Kentucky Pioneer also believes there are some factually erroneous
17 characterizations, relative to the delays of the Kentucky Pioneer project, that have been
18 made. While these characterizations may have been unintentional, they have been
19 harmful to Kentucky Pioneer with respect to the processes and perceptions within the
20 regulatory agencies and, to some extent, to public perception of the project.

21 **Q. Has the Kentucky Pioneer project been delayed?**

22 A. Yes, the Kentucky Pioneer project has been delayed. The delay, however, is directly
23 caused by the regulatory hurdles over which Kentucky Pioneer had no control and is not

1 due to some failure on the part of Kentucky Pioneer to perform. Statutory and regulatory
2 hurdles are conditions precedent to finance and to construction – in the PPA.

3 **Q. Does the Kentucky Pioneer project’s use of synthesis gas in lieu of natural gas**
4 **provide advantages for the project?**

5 A. Yes. Projections by the DOE and the Energy Information Administration are
6 consistently forecasting the supply of natural gas (NG) availability to be less than
7 expected demand; and the shortage is not expected to improve. The current rising natural
8 gas costs and the growing consensus of long term forward cost projections suggest that
9 the price of natural gas in the future will generally cause power generation from natural
10 gas fired combustion turbines to be “out of market” going forward. This especially
11 impacts peaking operations where capital cost recovery is limited to seasonal operating
12 periods and merchant demand.

13 In contrast, synthesis gas, from gasification of plentiful solid feedstock materials,
14 represents a viable long-term alternative fuel for combustion turbines. Large coal
15 resources in America, and especially in Kentucky, result in very low cost volatility
16 forecasts for that fuel. Gasification and Integrated Gasification Combined Cycle
17 (“IGCC”) technology uses fuel sources which can therefore reasonably be used to project
18 competitive low cost power for users of the technology than other fuel is. Common
19 gasification feedstock materials, such as coal, petroleum coke, renewable components, all
20 have relatively flat forward price curves that enable realistic projections of only modest
21 variable cost increases for synthesis gas fuel production. Flatter and less volatile forward
22 price curves for resulting generation are therefore also predictable. EKPC has

1 demonstrated a progressive posture, and has chosen to take a leadership position by
2 continuing to work with the Kentucky Pioneer project – on behalf of its members.

3 Moreover, in addition to the benefits of lower cost and more reliable price
4 forecasts, synthesis gas has the benefit of potentially serving as an alternative fuel source
5 for the existing combustion turbines at the J.K. Smith site.

6 **Q. Can the use of the gasification technology benefit the Kentucky coal industry?**

7 A. Yes. Gasification is a viable technology for modernization of the coal-based power
8 generation fleet – even in Kentucky. Importantly, gasification and IGCC are increasingly
9 recognized as “the superior technology” for new generation with lower environmental
10 emissions and impact than other alternatives.

11 While the Commonwealth of Kentucky enjoys the lowest cost retail power in the
12 country, age and environmental regulatory pressures, as well as United States
13 Environmental Protection Agency lawsuits, are increasingly arguing for and necessitating
14 significant upgrading of plants – and their replacement. Natural gas fueled combustion
15 turbines are increasingly being viewed as not a particularly viable solution. Low cost
16 and readily available coal, Kentucky’s major resource, will remain the primary fuel of
17 choice – but under mandates for cleaner utilization. Gasification, compared to the other
18 modern technologies of fluid bed and super critical boiler systems, is uniquely qualified
19 as the cleanest regardless of the pollution pathway or pollutant one considers. This is
20 particularly true for the carbon dioxide (global warming) and mercury emissions.

21 EKPC should be commended for recognizing this and taking a progressive stance
22 and negotiating the PPA with Kentucky Pioneer. In so doing, EKPC has accepted a
23 leadership position, in the deployment of gasification based power generation – in return

1 for low cost power for a long time. This includes the use of RDF feedstock by Kentucky
2 Pioneer. Kentucky Pioneer views RDF, a lower cost feedstock component, to serve as an
3 economic bridge while experience is gained and lower capital cost plants are developed.
4 Coal, as the primary feedstock, is the ultimate vision for power generation in the 21st
5 Century.

6 The future of energy, from the perspective of the DOE, is expressed as its policy
7 known as “FutureGen” – DOE’s vision of electrical generation in the future. The entire
8 FutureGen project is quite simply a gasification facility that can utilize a variety of
9 feedstocks. Kentucky Pioneer is the embodiment of that vision. EKPC and the
10 Commonwealth of Kentucky can benefit from its presence years ahead of what DOE
11 envisions as the start date for its project. Benefits from this “headstart” can accrue to
12 EKPC and its customers, to Kentucky’s coal industry, and to the Commonwealth itself.

13 **Q. Does the Kentucky Pioneer project require EKPC to raise capital and invest the**
14 **proceeds in a capital investment?**

15 A. No. Kentucky Pioneer has taken on the entire capital investment risk of this project.
16 What EKPC does accomplish with this contract is meeting its obligation to its customers
17 to provide low cost power.

18 **Q. Is the Kentucky Pioneer project viable given the delays so far?**

19 A. Absolutely. Kentucky Pioneer has not failed to finance and construct the project.
20 Rather, the timing of the “government approval” requirements have caused the delay.
21 These include:

- 22 1. The National Environmental Policy Act (NEPA) required DOE-EIS Record of
23 Decision (ROD) process took 33-months instead of the DOE expectation of 18

1 months. Fulfillment of the NEPA requirement, as evidenced by approval of the
2 Record of Decision (ROD), which did not occur until late January 2003, is a
3 mandatory federal pre-condition to construction and to the federal government
4 role in project funding, as EKPC knows from similar dealings with RUS –
5 particularly at their J.K. Smith site. This is no less true for Kentucky Pioneer.

6 2. The enactment of the Siting Board legislation and subsequent certification process
7 has added additional delay; and the process is not yet complete. The Siting
8 Board legislation arguably would not have been applicable to the Kentucky
9 Pioneer project had the DOE-EIS process been timely to allow construction to
10 begin prior to 2002.

11 3. The Public Service Commission has determined that it wants to review the PPA
12 between EKPC and Kentucky Pioneer. This investigation may not have been
13 necessary had the DOE-EIS process been timely and construction commenced
14 before 2002

15 It is therefore an unfair criticism and in fact a mischaracterization to assert that
16 Kentucky Pioneer has failed to advance the project when both federal and state
17 “government approvals,” including newly imposed ones, explicitly preclude this result.
18 This is especially true with respect to the “Plant Siting Act” and “Siting Board”
19 Certification process, which is not yet concluded and is a clear “Change of Law” under
20 the PPA.

21 It is true that the project is significantly delayed from expectation. All parties are
22 frustrated by that fact. However, from the beginning of the Kentucky Pioneer project, it
23 was clear that NEPA required DOE-EIS process was mandatory, and one over which

1 Kentucky Pioneer had no control. As a result, Kentucky Pioneer has not yet even had an
2 opportunity to address project finance, let alone demonstrate failure.

3 EKPC has expressed continued interest in the project and the low cost power.
4 Kentucky Pioneer continues to believe the project is completely viable and worthy of
5 consideration. This is especially so in light of the benefits of the project and EKPC's
6 continued interest. The project should be given the opportunity to succeed.

7 These "government approvals" are "conditions precedent" in the PPA. As
8 Kentucky Pioneer stated in the informal conference called by the Commission in this
9 case, approximately 6 months will be necessary to achieve project finance and begin
10 construction – once all regulatory hurdles are resolved. Kentucky Pioneer has not
11 attempted to maintain any progress on other project development activities – owing to
12 the significant uncertainties precipitated by this protracted process.

13 **Q. What is your recommendation to the Commission?**

14 A. In closing, Kentucky Pioneer commends EKPC for the progressive leadership it has
15 taken, as evidenced by its willingness to undertake this project. In doing so, it has
16 accepted a level of risk associated with this emerging gasification based technology. It
17 did so in return for the very favorable and long-term energy price. It has also done so
18 without capital risk to itself, and while recognizing that it has no exposure until it must
19 make future incremental decisions relative to ensuring it has adequate generation
20 capacity. Kentucky Pioneer believes that the advantages of the project to EKPC far
21 outweigh the uncertainties.

22 Kentucky Pioneer is committed to overcoming obstacles that confront it and
23 moving the project forward in a timely manner. This project represents a first step of

1 modernizing the coal-based generation fleet in Kentucky, while retaining utilization of
2 that valuable resource. Kentucky Pioneer's project also advances the Commonwealth's
3 policy of fostering and encouraging the use of Kentucky coal in the generation of
4 electricity.

5 Kentucky Pioneer requests the Commission issue an order finding that it is
6 reasonable and cost-effective for East Kentucky Power Cooperative, Inc. to continue
7 with the Kentucky Pioneer purchase power agreement in lieu of adding additional
8 combustion turbines to meet East Kentucky Power Cooperative, Inc.'s projected increase
9 in load on its system later this decade.

10 **Q. Does this conclude your testimony?**

11 **A. Yes.**

VERIFICATION

STATE OF OHIO

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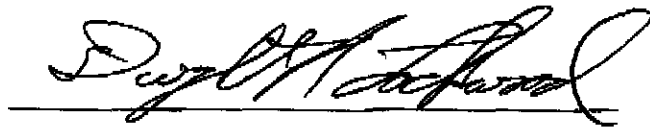
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SS:

COUNTY OF HAMILTON

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The undersigned, Dwight N. Lockwood, being duly sworn, deposes and says he is the Vice President of Regulatory Affairs of Kentucky Pioneer Energy LLC, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge and belief.



Subscribed and sworn to before me, a Notary Public in and before said County and State, this 11 day of August 2003.

 (SEAL)
Notary Public

My Commission Expires:

05-08-05

JULIE A. WALLACE
Notary Public, State of Ohio
My Commission Expires 05-08-05